CHILTON'S

AUTOMOTIVE INDUSTRIES

MARCH 1990

THE PEOPLE — THE PRODUCT — THE PROCESS

DESIGN'S SECRET WEAPON

TOYOTA'S UNCONVANTIONAL PREVIA

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CHILTON'S AUTOMOTIVE INDUSTRIES

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The Japanese Are Coming—Again!

Insiders say Mazda will **invade the US luxury market** in 1992 with a very Jaguar-like challenger.

From its traditional grille opening to the horizontal taillights, the new four-door Mazda is said to look like a longer and smoother XJ6. Technical specifications are as yet unclear, but insiders say the big rear-drive Mazda will be powered by a dohc 4.0 L V8, and built off the new Mazda Cosmo chassis.

It is possible the new challenger will offer the option of either the Cosmo's three-rotor turbocharged Wankel, or a street version of Mazda's recently introduced 3.5 L W12 racing engine.

Regardless of which engine is chosen, the new car will have about 300 hp on tap.

Suspension will be fully-independent, with some form of adaptive damping control. Mazda has offered electronically adjustable shocks on its sporting cars, but it is thought the new car will offer an air-over-hydraulic suspension system like Citroen has on its new XM. (Mazda is Citroen's Japanese sales agent.) Computer-controlled, four-wheel-steering is also under consideration.

Black Gold—Texas Tea

Current US oil reserves are so low that if Uncle Jed were "shootin' at some food" in today's market, he'd never get the chance to move to Bev-er-ly (Hills that is). In fact, the American Petroleum Institute points out that 1989 **oil imports accounted for 46% of US oil consumption**, compared to just 31% in 1985. Further analysis of the current numbers show that the US (ranked ninth in oil reserves at 26.8 billion barrels) is exhausting its supply at a faster rate than any other oil producing country.

ENERGY USERS, ENERGY HOARDERS

Annual Oil Production		Proven Oil Reserves	
Country	Barrels (Billion)	Country	Barrels (Billion)
1. USSR	4.3	1. Saudi Arabia	169.0
2. USA	2.9	2. Iraq	100.0
3. Saudi Arabia	1.8	3. Iran	92.8
4. China	1.0	4. Abu Dhabi	92.2
5. Mexico	0.953	5. Kuwait	91.9

Chart: API

Nissan's New Superlight Automatic

Nissan's new Sentra, which will debut this year, will feature a new superlight four-speed automatic transaxle that improves both fuel economy and acceleration. Weighing just 136 lb, the new tranny is 22% lighter than the current Sentra unit, and stands 3.15 in. and .75 in. shorter in height and length. Designed for planetary gear transaxles, it **features a superflat torque converter**—17% shorter than current models. Nissan says this compact size reduces converter weight as well as moment of inertia by 20%. Other features include molybdenum steel gears; many aluminum components including the oil pump; a 27% reduction in rotating part weight and 9% less internal friction.

The New Bed Buddies

It was like the "mating of two porcupines" is how Chrysler vice-chairman Gerald Greenwald describes the conception of New Venture Gear, the new joint-venture between Acustar's New Process Gear division and GM's Hydra-matic plant in Muncie, IN. NVG, headquartered in Troy, MI, is the first manufacturing **jv between two major US automakers.** Greenwald says the deal, in which Chrysler owns 64%, is a "natural fit"—New Process lacked floorspace and the Muncie plant (operating at just 40% capacity) needed the work. NVG will build 4x4 transfer cases, viscous couplings, manual transmissions and differentials for both automakers, as well as solicit business from other sources. It will be responsible for its own R&D and will develop products independently.

NEW VENTURE GEAR

Packing The Bag

We've recently heard some hot air blowing around Detroit regarding the **cost of replacing airbags** after they've deployed. But when some numbers started to sound outrageous – like "over $15,000" to replace both bags on the new Mercedes SL – we had to check it out. Realizing that the price of replacing airbags is usually 1) covered by insurance; 2) no big deal, compared to the cost of fixing lots of bent sheet metal; and 3) better than facial surgery, we submit this random sampling of retail parts costs for airbag replacement. Labor is not included, but according to Bob McAnally, editor of the famed Chilton *Flat Rate Labor Guide*: "The mentality of the retail trade is such that airbags are a sophisticated system and these are sophisticated parts – so they're gonna soak your ass for them."

AIRBAG REPLACEMENT COSTS

BMW	$2650 (approx.), all models. Incl. module, steering wheel, wire, sensors, controller
Chrysler	$442, all models. Incl. module, clock spring
GM	$850 ave. all models. Incl. module
Ford	$600 driver-side/$750 pass-side, ave. module cost
Mercedes	$1300 driver-side/$1400 pass-side (approx)
Volvo	$1200 all models, module only
Saab	$2600 all models. Incl. $1052 module; $1074 electronic unit; $500 sensors, steering wheel, contact unit, etc.

Fall Down, Go Boom

The airbag business is booming in more ways than one. Last year the only plant in North America (owned by ICI) that makes sodium azide – the propellant that fills up airbags – caught fire. And TRW's azide mixing plant in Mesa, AZ suffered an explosion. But now help is on the way. Next year TRW will begin grinding and **blending azide with a heavy water content**. And the mixture will be squeezed dry, not blown dry. Then, in 1992 Allied-Signal hopes to introduce a solid propellant. Good thing. By 1995 total airbag sales could reach $4 to $5 billion – provided they make it to the market.

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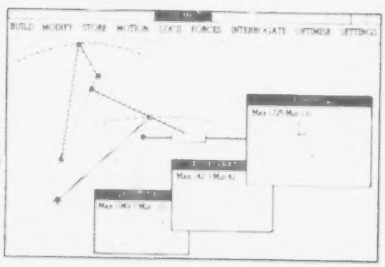

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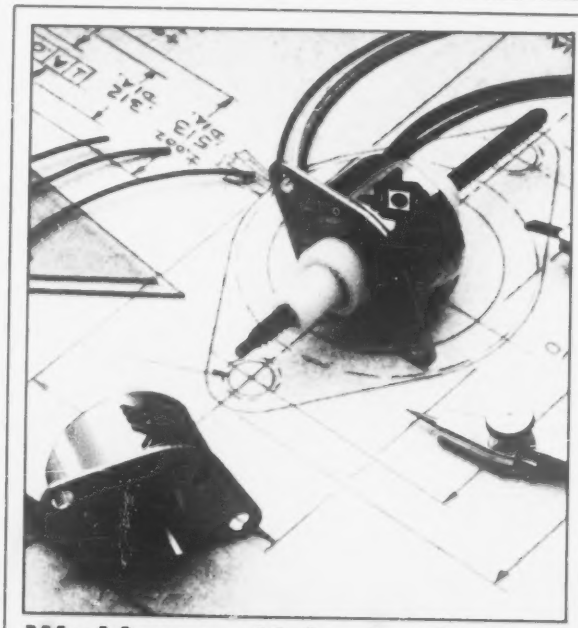

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Diesel Re-Do

Targeting nearly 20% of your strongest-selling car line to be diesel-powered may sound crazy today—unless you're Volkswagen. VW hoped to sell 12,000 of its re-introduced Jetta Diesels last year; it sold only 4000, while gasoline Jetta sales topped 55,000. The **12,000 unit sales target** still stands for 1990.

"Last year the diesel was a base model and sold for $11,320," says Larry Nutson, VW manager of product information, who notes that for '90, the car wears upscale GL trim and sells for nearly $1000 less. Nutson also says VW is leaning towards offering a reborn Golf Diesel. Although a recalibrated injection pump, new combustion chambers and injectors have cleaned up VW's diesel, it still won't pass California NOx and particulate emissions standards.

M-B Aims Low

Despite having 410,000 diesel passenger cars—40% of all Mercedes-Benz cars in operation in the US—on the road, Mercedes-Benz has set **a modest sales goal** for its new 300D 2.5 Turbo and 300SDL models. The combined sales rate for the new cars is 4000 units per year, which represents about 7.5% of the company's 49-state sales target (the cars do not meet California emission standards). However, Mercedes officials say diesel production can be adjusted to meet demand, and expect sales to reach 12,500 units in 1991.

The Cars Are The Stars

Unlike the US market, **new car registrations—and production—in Japan were up for CY 1989**. The following chart, from Toyota, is a summary of domestic Japanese registration activity for that year.

NEW VEHICLE REGISTRATIONS IN JAPAN JAN.-DEC. 1989

Company	Total Vehicles	'88 vs. '89(%)	Cars	Trucks & Buses	Share (%)
Toyota	2,308,863	8.9	1,760,966	547,897	31.8
Nissan	1,319,078	13.7	997,002	322,076	18.2
Mitsubishi	665,227	6.9	233,002	432,225	9.2
Honda	663,138	8.2	457,570	205,568	9.1
Suzuki	510,837	-2.1	140,204	370,633	7.0
Daihatsu	509,528	-2.3	157,047	352,481	7.0
Mazda	483,769	19.4	296,149	187,620	6.7
Fuji Hvy. Ind.	313,241	-.5	138,104	175,137	4.3
Isuzu	203,407	-1.1	43,395	160,012	2.8
Import Vehicles	181,980	35.1	180,978	1,002	2.5
Hino	59,615	8.3	--	59,615	0.8
Nissan Diesel	38,021	14.8	--	38,021	0.5
Cars Total	--	18.5	4,404,417	--	--
Trucks Total	--	-4.3%	--	2,852,287	--

Cutting Through The Haze

The Rofin-Sinar Laser Group, part of Siemens A.G., is predicting **slower laser growth** in the $60 million US market during 1990, due to falling auto sales and overcapacity concerns. However, the company expects strong sales growth to continue in both Japan and Europe.

Future laser fiber optics developments include reducing the fiber core width for increased beam quality, creating fiber optic systems for CO and CO^2 lasers, and developing multi-kilowatt fiber optic Nd:YAG (Neodynium-doped yttrium aluminum) lasers. The auto industry uses 27% of CO^2, and 3% of Nd:YAG lasers.

But the biggest barrier to increased laser use in the US is management, says Dennis Fortino, president of Rofin-Sinar, Inc. "We have a conservative posture in the US. Management doesn't care about the long-term benefits as much as the short-term return on investment."